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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,691	12/16/2003	Nobuyuki Satoh	246701US2	3553

22850 7590 07/26/2006

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EXAMINER	
PHAM, HAI CHI	
ART UNIT	**PAPER NUMBER**
2861	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/735,691	SATOH, NOBUYUKI	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE (06/12/06) and Amendment (05/12/06)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-15,18 and 19* is/are rejected.

7)☒ Claim(s) *6,7,16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Request For Continued Examination

1. The request filed on 06/12/06 for a Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/735,691 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,285,849) in view of Hoshino et al. (U.S. 4,912,491) and Shibata et al. (US 6,690,469).

Shimada et al. discloses a misalignment detector for detecting the positional shift of each laser beam in a color image forming apparatus, the detector comprising an image sensor (photodiode 29) configured to read a position detection pattern (registration patterns 21a, 21b) that is formed on an image carrier (transfer belt 12), a light source (semiconductor laser 25) that outputs light, a synthesizing unit (half mirror 36) configured to refract input light from the light source (it is noted that the half or dichroic mirror 36 is basically a transparent plate with a special coating for transmitting light of specific

wavelength while reflecting light of other wavelength, and that the plate naturally refracts any input light), and to pass the light of the light source so as to illuminate the position detection pattern, and collects (via lens 27) and reflects a light reflected from the position detection pattern (Fig. 16).

With regard to claims 8-10, Shimada et al. further teaches the color image forming apparatus comprising a plurality of laser beams for forming latent images on the photoconductive drums (Fig. 1) and a misalignment calculator that detects the misalignment of the laser beams based on the image formed on the image sensor (circuit comprising the amplifier 30 and the comparator 31) (Fig. 17).

Shimada et al. fails to teach the image sensor being configured as a two-dimensional image sensor.

Hoshino et al. discloses a misregistration detecting system for use in an image forming apparatus, the device includes a pair of two-dimensional image sensors (e.g., image sensors 14A and 15A) for detecting the registration marks (e.g., marks 16Y and 16M) (col. 12, lines 3-6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a two-dimensional image sensor in the device of Shimada et al. as taught by Hoshino et al. The motivation for doing so would have been to allow the image sensor to receive the reflected light that covers the entire registration mark.

Shimada et al. also fails to teach the focusing lens that focuses the light reflected from the synthesizing unit on the image sensor.

Shibata et al. discloses an apparatus for inspecting defects on a sample, the apparatus comprising a light source (8) and half mirror (15) for refracting and passing the incident light beam to illuminate the sample (1), and reflects the reflected light from the sample to the image sensor (70), the reflected light from the half mirror being focused on the image sensor by the focusing lens (30).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Shimada et al. with the focusing lens arranged after the half mirror and along the reflected light path toward the photodiode as taught by Shibata et al. The motivation for doing so would have been to accurately project the reflected light onto the light-receiving surface of the image sensor.

Shimada et al. further teaches the position detection pattern includes a plurality of lines that are parallel to each other (e.g., registration mark patterns 44-47 having a plurality of parallel lines) (Fig. 19).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Hoshino et al. and Shibata et al., as applied to claim 1 above, and further in view of Dirksen et al. (US 6,417,922).

Shimada et al., in view of Hoshino et al. and Shibata et al., discloses all the basic limitations of the claimed invention except for the light synthesizing unit including a prism.

However, the half mirror and the dichroic prism are known to be alternatively used since they have the same property of transmitting light of specific wavelength while reflecting light of different wavelength based on the specific coating as evidenced by Dirksen et al. at col. 12, lines 42-54.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to substitute the half mirror in the device of Shimada et al. with a prism as since Dirksen et al. teaches this to be known as being equivalent component that carries the same characteristic.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Hoshino et al. and Shibata et al., as applied to claim 1 above, and further in view of Sikes et al. (U.S. 6,499,402).

Shimada et al., in view of Hoshino et al. and Shibata et al., discloses all the basic limitations of the claimed invention except for the position detection pattern including dots of a predetermined size.

Sikes et al. discloses a system for controlling the registration of the web printing press including a CCD sensor (30) for sensing the registration pattern (110) printed on the web, the registration pattern comprising a plurality of dots printed on the web at precise locations (Fig. 5A).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the registration pattern of the device of Shimada et al. having a plurality of dots as taught by Sikes et al. The motivation for doing so would have been to allow a precise control of the registration of the different color images.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Hoshino et al. and Shibata et al., as applied to claim 1 above, and further in view of Sawayama et al. (JP 6-1002).

Shimada et al., in view of Hoshino et al. and Shibata et al., discloses all the basic limitations of the claimed invention except for the light source and the image sensor being mounted on a same circuit board.

Sawayama et al., an acknowledged prior art, discloses in Fig. 8 an image sensing device (42) comprising a light emitting device (42_1), a photodetector (42_2) both being mounted on the same circuit board and enclosed in a housing (42_5).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to set the light source and the photodiode of the device of Shimada et al. on the same circuit board as taught by Sawamaya et al. The motivation for doing so would have been to provide a compact configuration of the image sensing device.

7. Claims 11, 13, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Shibata et al. and Hennings (U.S. 3,712,740).

Shimada et al., in view of Shibata et al., discloses all the basic limitations of the claimed invention (please refer to paragraph 3 above for the rejection of the claimed limitations), but except for the second reflecting surface.

Hennings discloses in Fig. 6 a misalignment detecting device comprising a light source (13), a synthesizing unit in the form of a first half mirror (15) for passing the light emitted from the light source (13) to illuminate the register mark (3), the first half mirror reflects the reflected light from the register mark toward a second half mirror (16) using as a second reflecting surface for reflecting the light beam reflected from the first half mirror into the measuring device (5).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the second reflecting into the device of Shimada et al. as taught by Hennings. The motivation for doing so would have been to redirect the reflected light beam to the light sensor, which is located on the same circuit board as the light source.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Shibata et al., as applied to claim 11 above, and further in view of Dirksen et al. (US 6,417,922).

Shimada et al., in view of Shibata et al., discloses all the basic limitations of the claimed invention except for the light synthesizing unit including a prism.

However, the half mirror and the dichroic prism are known to be alternatively used since they have the same property of transmitting light of specific wavelength while reflecting light of different wavelength based on the specific coating as evidenced by Dirksen et al. at col. 12, lines 42-54.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to substitute the half mirror in the device of Shimada et al. with a prism as since Dirksen et al. teaches this to be known as being equivalent component that carries the same characteristic.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Shibata et al., as applied to claim 11 above, and further in view of Sikes et al.

Shimada et al., in view of Shibata et al., discloses all the basic limitations of the claimed invention except for the position detection pattern including dots of a predetermined size.

Sikes et al. discloses a system for controlling the registration of the web printing press including a CCD sensor (30) for sensing the registration pattern (110) printed on the web, the registration pattern comprising a plurality of dots printed on the web at precise locations (Fig. 5A).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the registration pattern of the device of Shimada et al. having a plurality of dots as taught by Sikes et al. The motivation for doing so would have been to allow a precise control of the registration of the different color images.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. in view of Shibata et al., as applied to claim 1 above, and further in view of Sawayama et al. (JP 6-1002).

Shimada et al., in view of Shibata et al., discloses all the basic limitations of the claimed invention except for the light source and the image sensor being mounted on a same circuit board.

Sawayama et al., an acknowledged prior art, discloses in Fig. 8 an image sensing device (42) comprising a light emitting device (42_1), a photodetector (42_2) both being mounted on the same circuit board and enclosed in a housing (42_5).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to set the light source and the photodiode of the device of

Shimada et al. on the same circuit board as taught by Sawamaya et al. The motivation for doing so would have been to provide a compact configuration of the image sensing device.

Allowable Subject Matter

11. Claims 6-7 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments with respect to claims 1-5, 8-15 and 18-19 have been considered but are moot in view of the new grounds of rejection.

Response to Arguments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai Pham

HAI PHAM
PRIMARY EXAMINER

July 20, 2006